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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,540	12/15/2000	Jae-Hoon Lee	SAM-134	9736

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MILLS & ONELLO, LLP
ELEVEN BEACON STREET
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BOSTON, MA 02108

EXAMINER

KANG, DONGHEE

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/737,540

Applicant(s)

LEE ET AL.

Examiner

Donghee Kang

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8, 9 and 18-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-9 & 18-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgment

1. Applicant's amendment and response have entered. Claims 7 & 10-17 have been cancelled. New claims 18-25 have been added. Thus claims **1-6, 8-9 & 18-25** are pending in this application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims **1 & 18** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase "said second conductive layer being a single conductive layer" is not supported by the disclosure. The second conductive layer includes multiple conductive layers 255 & 260 (see fig.3E). The examiner interprets a single conductive layer as a multiple conductive layers.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims **1-6, 8-9, & 18-25** are rejected under 35 U.S.C. 102(e) as being anticipated by Ishibashi et al. (US 6,150,690).

Re claims 1 & 18, Ishibashi et al. teach a wiring of a semiconductor device comprising (Fig.36):

A first conductive layer (6) formed on a semiconductor substrate; a first insulating layer (10) formed on said first conductive layer, wherein the first insulating layer is planarized by CMP process (Col.10, lines 1-11); a second insulating layer (12) formed on said first insulating layer to cover the surface of the first insulation layer; a second conductive layer (11b & 18-19) contacting said first conductive layer through a via hole formed in said first and second insulation layers; and a third conductive layer (14 & 15) formed in a groove formed in said second insulation layer, wherein said groove has a depth less than a thickness of said second insulation layer. Ishibashi et al. do not explicitly teach the first insulating layer has a scratch on a surface thereof. However, this feature is inherent because the first layer of Ishibashi is also planarized by CMP process.

Re claims 2 & 19, Ishibashi et al. teach said first and second insulation layers are formed from a same insulation material (Col.10, lines 1-17).

Re claims 3 & 20, Ishibashi et al. teach said second conductive layer comprising a plug filling said via hole.

Re claims 4 & 21, Ishibashi et al. teach said first conductive layer is an impurity doped region on said semiconductor substrate (Col.9, lines 56-61).

Re claims 5 & 22, Ishibashi et al. teach a wiring of a semiconductor device further comprising:

A third insulation layer (16) formed on said second insulation layer, having a second via hole therein; and a fourth conductive layer (18 & 19) formed on said third insulation layer, contacting said third conductive layer through said second via hole.

Re claims 6 & 23, Ishibashi et al. teach said fourth conductive layer is a bit line formed from a conductive material selected from a group consisting of tungsten.

Re claims 8 & 24, Ishibashi et al. teach said first and second insulation layers are formed from a same insulation material.

Re claims 9 & 25, Ishibashi et al. teach said second conductive layer is formed from a metal selected from a group consisting of tungsten.

Response to Arguments

6. Applicant's arguments filed March 29, 2004 have been fully considered but they are not persuasive.

Applicant argues that Ishibashi et al. fail to teach the second conductive layer being a single conductive layer. This is not convincing. The phrase "said second conductive layer being a single conductive layer" is not supported by the disclosure. The second conductive layer includes multiple conductive layers 255 & 260 (see fig.3E). The examiner interprets a single conductive layer as a multiple conductive layers.

Applicant argues that Ishibashi et al. fail to teach or suggest a scratch formed in a first insulating layer by a CMP process. This is not convincing. In Ishibashi's device, the first insulating layer 10 may include a scratch because it is also planarized by CMP process.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 571-272-1656. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Donghee Kang, Ph.D.
Primary Examiner
Art Unit 2811

dhk